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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/663,995	09/18/2000	H. Kenneth Staffin	2453-80A	4548

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Ronald R Santucci  
Pitney Hardin Kipp & Szuch LLP  
711 Third Avenue 20th Floor  
New York, NY 10017

EXAMINER

DOROSHENK, ALEXA A

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 06/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/663,995	STAFFIN ET AL.	

<b>Examiner</b>	<b>Art Unit</b>
Alexa A. Doroshenk <i>AAD</i>	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 24 March 2003.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-7 and 12-25 is/are pending in the application.
  - 4a) Of the above claim(s) 12-25 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) 12-25 are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Election/Restrictions***

1. Newly submitted claims 12-25 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as fluid catalytic cracking.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 12-25 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. This application contains claims 12-25 drawn to an invention nonelected. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 112***

3. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “vertical elevation” which is unclear. The claim recites that the tuyeres are “mounted beneath the piping array in a vertical elevation”. How can the tuyeres be at a vertical elevation when they are mounted beneath the piping array? It is not clear to the examiner that “vertical elevation” is an equivalent term to “perpendicular” as applicant asserts on page 7 in the response filed March 24, 2003.

If, in response to this rejection, applicant were to further amend the claim to recite a “perpendicular” arrangement and use Figure 4 as support (as suggested on page 7 of the response filed March 24, 2003) for such an amendment, the examiner would require further support as Figure 4 is only a two dimensional illustration of the device, it is fully possible that the tuyeres are in fact not perpendicular when viewed from another angle.

For examination purposes, the claim is continued to be treated as wherein the tuyeres are coupled to and mounted beneath the piping array.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 2 continue to be rejected under 35 U.S.C. 102(b) as being anticipated by Lionetti et al. (4,443,551) as presented in paragraph 4 of Paper No. 4.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Menon et al. (5,908,804).

With respect to claim 1, Menon et al. discloses a fluid bed reactor comprising:  
a fluid bed reactor (2) with a gas distributor (18) including a piping array  
discharging into a fluid bed of solids (col. 6, lines 4-8) through a plurality of tuyeres (20)  
coupled to and mounted beneath the piping array (see fig. 1) (col. 6, lines 8-12).

With respect to claim 2, Menon et al. further discloses wherein the gas distributor  
discharges the gas through openings in the bottom portion of the piping array (see fig. 1  
and col. 4, lines 57-60).

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claim 3 continues to be rejected under 35 U.S.C. 103(a) as being unpatentable over Lionetti et al. (5,908,804) in view of Robinson et al. (3,763,830) as presented in paragraph 6 of Paper No. 4.
9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Menon et al. (5,908,804) in view of Robinson et al. (3,763,830).

With respect to claim 3, Menon et al. discloses all of the structure as described above but is silent as to providing a heat exchanger in a feed line to the distributor.

Robinson et al. discloses a fluidized bed apparatus where distribution is required in the fluidized bed, such as the apparatus of Menon et al. Robinson et al. discloses wherein a heat exchanger feed line (38) is located above the distribution ports (33, 34, 35) and submerged in the fluidized bed (30) in order to control operating temperature (col. 7, lines 39-54). It would have been obvious to one of ordinary skill in the art at the

time the invention was made to apply the heat exchange teaching of Robinson et al. in the apparatus of Menon et al. in order to provide greater control of temperature and operation of the apparatus.

10. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Munday (3,053,704) in view of Menon et al. (5,908,804).

With respect to claim 1, Munday discloses a fluid bed reactor comprising:  
a fluid bed reactor (1) with a gas distributor (4) including a piping array discharging into a fluid bed of solids (2) through a plurality of openings (3) (col. 6, lines 8-12).

Munday does not discloses wherein the distributor comprises tuyeres coupled to an mounted beneath the piping array.

Menon et al. teaches a fluid bed reactor (2) with a gas distributor (18) including a piping array discharging into a fluid bed of solids (col. 6, lines 4-8) through a plurality of tuyeres (20) coupled to and mounted beneath the piping array (see fig. 1) (col. 6, lines 8-12) and teaches wherein such a distributor and it's placement in relation to the fluidized bed results in an enlarged combustion zone (col. 5, lines 57-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the gas distributor as taught by Menon et al. in the apparatus of Munday in order to provide a larger combustion zone for increased reaction and greater operation of the device.

With respect to claim 2, Menon et al. further discloses wherein the gas distributor discharges the gas through openings in the bottom portion of the piping array (see fig. 1 and col. 4, lines 57-60).

With respect to claim 3, Munday further discloses wherein there is a heat exchanger (8) located above the fluidizing gas distribution ports (3) and submerged in the fluidized solids (2).

With respect to claims 4 and 6, Munday further discloses wherein the bed further comprises metal parts including aluminum (col. 1, lines 14-60).

With respect to claims 5 and 7, Munday further discloses wherein the bed comprises metal castings (col. 1, lines 14-17). Though Munday is silent as to the specific nature of these castings, it is held that metal castings typically comprise sand cores of aluminum casting as evidenced by Bickford et al. (US 6,253,830 B1) (col. 3, lines 42-44).

### ***Response to Arguments***

#### **35 USC 112, Second Paragraph**

The 35 USC 112 second paragraph rejection of claims 6 and 7 in Paper No. 4 is withdrawn due to applicant's amendment to the claims.

#### **35 USC 102**

Applicant's arguments are directed toward the newly amended claim 1, citing that the newly added limitation of a "vertical elevation" orientation of the tuyeres overcomes the reference of Lionetti.

The examiner finds the recitation of "vertical elevation" unclear and has made a rejection under 35 USC 112, second paragraph as presented above.

Additionally, it is noted that applicant appears to be intending to recite that the tuyeres are in a perpendicular arrangement with respect to the piping array and the examiner has provided an additional rejection in view of Menon et al. to anticipate such an argument or amendment.

35 USC 103

The response to the 35 USC 103 rejections continue to be directed toward the "vertical elevation" limitation which is discussed above.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

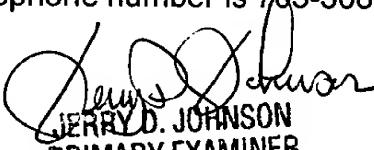
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Calderola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



JERRY D. JOHNSON  
PRIMARY EXAMINER  
GROUP 1100

*JAD*  
AAD  
June 4, 2003